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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,837	12/14/2005	Nigel P. Robinson	020541	8684

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QUALCOMM INCORPORATED
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

EXAMINER	
SETO, JEFFREY K	
ART UNIT	PAPER NUMBER
2458	

NOTIFICATION DATE	DELIVERY MODE
06/16/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com
kascanla@qualcomm.com
nanm@qualcomm.com

Office Action Summary	Application No.	Applicant(s)	
	10/537,837	ROBINSON, NIGEL P.	
	Examiner	Art Unit	
	Jeffrey Seto	2458	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24 and 26-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24 and 26-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-24 & 26-38 are pending.

Response to Amendment

2. In response to the Amendment filed 3-11-2009:

   a. The objections to claims 5, 6, 8, 13, 18-20 & 23 are withdrawn;

   b. The rejection of claim 25, under 35 USC 112, 2nd paragraph is withdrawn.

Response to Arguments

3. Applicant's arguments filed 3-11-2009 have been fully considered but they are not persuasive. Regarding Applicant's argument that Bauer does not teach calculating a high watermark value and a low watermark value in response to the received parameter data and radio link resources data corresponding to maximal and minimal numbers of data frames to be buffered. Bauer teaches a packet control unit (PCU) 18 that calculates a high watermark value and a low watermark value (See paragraph 6, line 7; wherein the upper and lower BVC flow control triggers are the high and low watermarks, respectively; and, par. 11, line 3, and par. 12, lines 1-4). Bauer further teaches a DL request scheduler 26 that provides parameter data to the PCU 18, and a RLC/MAC blocks scheduler 34 that radio link resource data to the PCU 18 (See par. 20; wherein the requests from the scheduler 26 are sent to the PCU; and, par.'s 21-22, wherein scheduler 34 monitors radio, or transmitting, resources).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. Claims 1, 2, 5-11, 14, 15, 18-21 & 24 are rejected under 35 U.S.C. 102(a) as being anticipated by European Patent Application Publication No. EP 1133201 A1 to Bauer, et al. (Bauer).

2. Regarding claim 1, Bauer teaches an apparatus for transmitting data, the apparatus comprising: segmenting means for segmenting data into data frames (See paragraph 14, lines 1-2, and Figure 2; wherein the scheduler 26 is the segmenting means); buffering means for buffering the data frames from the segmenting means (See par. 14, line 5-7; wherein queue 36 is the buffering means); transmitting means, connected to the buffering means to receive data frames therefrom, for transmitting the data frames (See par. 14, lines 2-4; wherein scheduler 34 is the transmitting means); and controlling means (See par.'s 11 & 12; wherein PCU 18 is the controlling means) for controlling the segmenting means, the controlling means being arranged to receive parameter data from the segmenting means pertaining to the segmented data frames (See par. 20) and radio link resources data from the transmitting means pertaining to the transmission of data frames (See par. 21), to calculate a high watermark value (BVC(U)) and a low watermark value (BVC(1)) in response to the received parameter data and radio link resources data corresponding to maximal and minimal numbers of

data frames to be buffered in the buffering means (See par.'s 29-30), and to control the segmenting means to maintain the number of data frames in the buffering means between the high and low watermark values (See par. 5, lines 6-8, and par. 43, lines 1-2).

3. Regarding claim 2, Bauer teaches the controlling means is arranged to define a high band of values including the high watermark value and a low band of values including the low watermark values (See par. 29; wherein B_{max} to BVC(U) is the high band of values and BVC(1) to B_{max} is the low band of values).

4. Regarding claim 5, Bauer teaches the controlling means is operable to control the transmitting means, the controlling means being arranged to generate a buffer empty signal for the transmitting means when the buffering means contains no data (See par. 21, lines 5-6; wherein signaling the end of a TBF is the equivalent of the a buffer empty signal).

5. Regarding claim 6, Bauer teaches the segmenting means is arranged to transfer to the controlling means parameter data pertaining to time-out value of a retransmission timer susceptible to delay (See par. 21, line 4; wherein transmission is in accordance with GSM, thus retransmissions inherently include a time-out).

6. Regarding claim 7, Bauer teaches the controlling means is arranged to calculate a transmit delay time by multiplying the time-out value by a constant, wherein the constant has a value greater than zero and less than or equal to 0.5 (See par. 21, lines 4-6; wherein re-transmissions are only sent after a delay, and delays are increased by a

multiple with each unsuccessful transmissions, as is standard in transmission protocols such as GSM).

7. Regarding claim 9, Bauer teaches the controlling means is arranged to calculate the size of the largest frame from the largest data frame that may be passed to the transmitting means for transmission (See par. 14, lines 2-4; wherein size information is included in the allocation of the capacity and the queue).

8. Regarding claim 10, Bauer teaches data frames may be transmitted in acknowledged and unacknowledged modes (See par.'s 14 & 15, and Figure 2 between channel (24) and queue (42); wherein a no-acknowledged mode may be used in other than normal operations), and the controlling means is arranged to calculate the size of the largest frame as the greater of the largest data frame that may be passed to the transmitting means for transmission in the acknowledged mode and the largest data frame that may be passed to the transmitting means for transmission in the unacknowledged mode (See par. 14, lines 2-4; wherein size information is included in the allocation of the capacity and the queue).

9. Regarding claim 11, Bauer teaches the radio link resources data from the transmitting means includes an allocated coding scheme and a number of allocated transmission slots for the data frames to be transmitted, and the controlling means is arranged to calculate a transmit rate from the allocated coding scheme and the number of allocated transmission slots (See par.'s 24, 26 & 29; wherein bit rate depends on coding scheme and queue length is dependent on number of allocated time slots).

10. Regarding claim 14, Bauer teaches a method of transmitting data, the method comprising: segmenting data into data frames (See paragraph 12, Figure 2, and (30)); buffering the data frames (See par. 18, line 1, Figure 2, and (36)); receiving buffered data frames; transmitting the data frames (See par. 22, lines 4-5, Figure 2, and (34)); receiving parameter data pertaining to the segmented data frames and radio link resources data pertaining to the transmission of data frames (See par. 29); calculating a high watermark value (BVC(U)) and a low watermark value BVC(1)) in response to the received parameter data and radio link resources data corresponding to maximal and minimal numbers of data frames to be buffered; and maintaining the number of buffered data frames between the high and low watermark values (See par. 5, lines 6-8, and par. 43, lines 1-2).

11. Regarding claim 15, this claim recites a method for operating the apparatus of claim 2, and is rejected for at least the same reasons.

12. Regarding claim 18, the claim recites a method for operating the apparatus of claim 5, and is rejected for the same reasons.

13. Regarding claim 19, the claim recites a method for operating the apparatus of claim 6, and is rejected for the same reasons.

14. Regarding claim 20, the claim recites a method for operating the apparatus of claim 10, and is rejected for the same reasons.

15. Regarding claim 21, this claim recites a method for operating the apparatus of claim 11, as is rejected for at least the same reasons.

16. Regarding claim 24, Bauer teaches a data transmitter in which incoming data for transmission is divided into data blocks and passed in frame transmission order to a radio link stage via a serial frame buffer which holds the data until the radio link is able to transmit it (See par. 5), the incoming data having associated with it various parameters and the radio link stage having allocated to it radio link resources which parameters and resources change independently of each other from time to time and are supplied to a controller (See par. 14) which calculates high and low buffer levels therefrom and controls the passing of the data frames through the frame buffer to maintain the number of frames in the buffer at any instant of time at a level between the calculated high and low levels (See par. 29).

17. Regarding claim 26, this claim recites an apparatus with the same or similar features as claim 1, and is rejected for the same reasons.

18. Regarding claim 27, this claim recites an apparatus with the same or similar features as claim 2, and is rejected for the same reasons.

19. Regarding claim 30, this claim recites an apparatus with the same or similar features as claim 5, and is rejected for the same reasons.

20. Regarding claim 31, this claim recites an apparatus with the same or similar features as claim 6, and is rejected for the same reasons.

21. Regarding claim 32, this claim recites an apparatus with the same or similar features as claim 7, and is rejected for the same reasons.

22. Regarding claim 33, this claim recites an apparatus with the same or similar features as claim 8, and is rejected for the same reasons.

23. Regarding claim 34, this claim recites an apparatus with the same or similar features as claim 8, and is rejected for the same reasons.

24. Regarding claim 35, this claim recites an apparatus with the same or similar features as claim 10, and is rejected for the same reasons.

25. Regarding claim 36, this claim recites an apparatus with the same or similar features as claim 11, and is rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

26. Claims 3, 4, 12, 13, 16, 17, 22 & 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer, as applied to claims 2, 11, 15 & 21 above, in view of U.S. Patent No. 5,802,310 issued to Rajaraman.

27. Regarding claim 3, Bauer teaches the invention as described in claim 2. Bauer does not teach the controlling means is arranged to generate a suspend signal for the segmenting means when the number of data frames in the buffering means is in the high band. However, Rajaraman teaches this limitation (See column 4, lines 59-62). Using the feature of Rajaraman in the system of Bauer would have allowed the system to not only reduce the amount of data coming in, but also stop all data from coming in, when the buffer filled to a critical level. This would have prevented the loss of data due

to buffer overflow. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the teachings of Rajaraman and Bauer.

28. Regarding claim 4, Bauer teaches the invention as described in claim 2. Bauer does not teach the controlling means is arranged to generate a resume signal for the segmenting means when the number of data frames in the buffering means is in the low band. However, Rajaraman teaches this limitation (See col. 4, lines 62-64). Using the feature of Rajaraman in the system of Bauer would have allowed for the buffer to begin filling up again with data, once the buffer was emptied to a critical low level. This would have prevented wasted clock cycles, where no data was transmitted, thereby increasing efficiency. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the teachings of Rajaraman and Bauer.

29. Regarding claim 12, Bauer teaches the invention as described in claim 11. Bauer further teaches the radio link resources data from the transmitting means includes an allocated coding scheme and a number of allocated transmission slots for the data frames to be transmitted, and the controlling means is arranged to calculate a transmit rate from the allocated coding scheme and the number of allocated transmission slots (See par.'s 24, 26 & 29; wherein bit rate depends on coding scheme and queue length is dependent on number of allocated time slots). Bauer does not teache the controlling means is arranged to calculate the high watermark value from the calculated size of the largest frame and the calculated transmit rate. However, Rajaraman teaches this limitation (See col. 4, lines 44-45; wherein the first queue limit is

the high watermark). Using the feature of Rajaraman in the system of Bauer would have allowed for the optimal high watermark to be calculated, which would allow for optimal efficiency during data transfer. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the teachings of Rajaraman and Bauer.

30. Regarding claim 13, Bauer teaches the invention as described in claim 1. Bauer does not teach the controlling means is arranged to calculate the low watermark value as a fraction of the high watermark value. However, Rajaraman teaches the controlling means is arranged to calculate the low watermark value as a fraction of the high watermark value (See col. 5, lines 28-30; wherein the same multiple is used to set both high and low watermarks). Using the features of Rajaraman in the system of Bauer would have allowed for an optimal low watermark to be calculated, which would insure sufficient capacity for burst transmissions during data transfer. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the teachings of Rajaraman and Bauer.

31. Regarding claim 16, this claim recites a method for operating the apparatus of claim 3, and is rejected for at least the same reasons.

32. Regarding claim 17, this claim recites a method for operating the apparatus of claim 4, and is rejected for at least the same reasons.

33. Regarding claim 22, this claim recites a method for operating the apparatus of claim 12, and is rejected for at least the same reasons.

34. Regarding claim 23, this claim recites a method for operating the apparatus of claim 13, and is rejected for the same reasons.

35. Regarding claim 28, this claim recites an apparatus with the same or similar features as claim 3, and is rejected for the same reasons.

36. Regarding claim 29, this claim recites an apparatus with the same or similar features as claim 4, and is rejected for the same reasons.

37. Regarding claim 37, this claim recites an apparatus with the same or similar features as claim 12, and is rejected for the same reasons.

38. Regarding claim 38, this claim recites an apparatus with the same or similar features as claim 13, and is rejected for the same reasons.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Seto whose telephone number is (571)270-7198. The examiner can normally be reached on Monday thru Thursday and alt. Fridays, 9:30 AM-7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph E. Avellino can be reached on (571) 272-3905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JKS
6/9/2009

/Joseph E. Avellino/
Supervisory Patent Examiner, Art Unit 2458